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Towards a Digital Workerism: Workers' Inquiry, Methods, and Technologies

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Abstract Digital technology is playing an increasingly visible role in the organisation of many people's work—as well as large parts of their lives more broadly. The concerns of emancipatory technology studies, or other critical accounts of technology, are often focused on finding alternative uses of technology. In many workplace contexts—from call centres to platform work—the imperatives of capital are deeply written into these technologies. Yet at the same time, many capitalist technologies are playing a key role facilitating emerging workers' struggles. For example, in the case study examined here, Deliveroo drivers rely on communication technologies like WhatsApp to organise against algorithmic management. Drawing on an ongoing workers' inquiry, this paper seeks to consider what a workerist approach to digital technology can add to these debates. The paper outlines the challenges and opportunities for a “digital workers' inquiry,” considering how this approach combines research with organising. The argument is divided into two main parts: first, the need for inquiries in digital work and the importance of these and second, how the process of inquiry and co-research (and the methods these involve) can be adapted and refined with digital technology. By starting the critique of technology from the workplace, this paper

proposes a workerist account of how technologies can be destroyed or re-appropriated, starting from a reading of workers' struggle.

Keywords Workers' inquiry · Class composition · Platforms · Worker organisation · Co-research

Introduction

Digital technology is playing an increasingly visible role in the organisation of many people's work—as well as large parts of their lives more broadly. The concerns of emancipatory technology studies, or other critical accounts of technology, are often focused on finding alternative uses of technology. In many workplace contexts—from call centres to platform work—the imperatives of capital are deeply written into these technologies [1]. Yet at the same time, many capitalist technologies are playing a key role facilitating emerging workers' struggles. For example, Deliveroo drivers rely on communication technologies like WhatsApp to organise against algorithmic management [2].

Building on the arguments from Englert et al., this paper considers what a ‘digital workerism’ [3] could mean for the understanding of the emancipatory potential of technology—as well as the new possibilities for workers' inquiry today. It first considers different perspectives on technology, then introducing the focus on Marxist theory. This starts with Marx,

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but then moves on to discuss the contributions of Italian Workerists. This tradition—of theory and practice—is drawn out in the next section that argues for the development of the approach of workers’ inquiry, combining research into digital work and technology with organising. The next two sections put forward the argument of the article: first, that inquiries into platform work like that at Deliveroo provide important and much needed insights into the use of technologies and second, that examples like these can provide experiments updating the practices of workers’ inquiry.

Can Technology Be Emancipatory?

The question of whether technology can be emancipatory poses two related problems: first, what do we mean by “technology” and what can it do? and second, what does it mean to be emancipatory—the emancipation of whom and from what? In this article, the question of whether technology can be emancipatory is considered through the lens of the workplace and workers’ experience. However, there are many other perspectives that have sought to make sense of these kinds of questions. For example, the question of technology has long been the focus of researchers interested in work—first in industrial relations and today in management departments, business schools, and the field of so-called Human Resource Management (HRM). HRM is the contemporary formulation of Taylor’s Scientific Management, which Braverman argued represented ‘*nothing less than the explicit verbalisation of the capitalist mode of production*’ [4]. This is unironically presented in the name chosen for this discipline, and in particular the first two words: Human Resource. As McGaughey has noted, this language ‘treats people as a means to an end’ [5], implying that workers must be flexible, that there is an individual responsibility for finding work (having the right “human capital”), and that managers have a right to manage without being held to account by workers. More worryingly, McGaughey found that where this HRM approach was most popular, there were worse outcomes. In the context of technology, the worker (as a human resource) is viewed as the recipient of technological interventions from management. The agency lies with management as the active power in HRM, with any resistance presented through

the idea of ‘employee voice’, something that good HRM practices should at least pay attention to [6].

There are other approaches to technology that address these questions. STS (Science and Technology Studies) has, as the name implies, held a focus on technology. Similarly, ANT (Actor-Network Theory) maintains that relationships in a network should be described rather than explained and that all entities (whether human or non-human) should be described in the same terms [7]. So rather than the partiality of HRM on management power, ANT instead proposes nonhumans (including technologies) as actors in networks, and as Bruno Latour has argued, should be part of the political sphere [8]. From this perspective, technology therefore can act and so could be emancipatory—perhaps acting for others, or indeed acting just for itself. For object-orientated ontology, which shares some of these positions, this involves deemphasising human agency as something unique, whether it is that of the capitalist or the worker [9]. As Whittle and Spicer have argued ([10], p. 628) ‘by producing descriptions of existing networks of actors in an apparently neutral, apolitical manner, ANT actually reinforces the state of affairs that it describes’. This makes it challenging to conceive of emancipatory potentials, as Whittle and Spicer ([10], p. 629) continue, it ‘makes ANT ill-suited to the task of developing political alternatives to the imaginaries of market managerialism’.

The focus on objects is not something that is alien to a Marxist approach. For example, Marx spent much of capital discussing commodities and the relationships involved in their production, exchange, and consumption. He even follows commodities to market, tracing out aspects of capitalism. However, what is different here is the relationship between the particular and the totality, with Marxism aiming for a critical explanation (and taking of action) based on this analysis, something that would not be part of ANT, for example. However, as Brown et al. ([11], p. 91) have argued, a ‘focus on artefacts’ can be useful for political economy, but what is ‘at stake here is what artefacts actually say when we allow them to speak to us’. For example, they ask whether ‘they tell of the various traumas of their exploitative and violent birthing? Do they scream to us the real history of their production that has been systematically repressed by the artifice of their commodification?’ ([11], p. 92). Therefore,

Marxism can provide a framework for making sense of these artefacts—and indeed of technology—by posing these kinds of questions. How is the agency of workers and capital expressed in these artefacts? How do they go on to effect workers and capital? How can these relationships be changed? This puts commodities and technologies within the social relations of their production and use, tying it to broader struggles over emancipation.

Technology has played an important role with labour since the first tools were adopted to help complete the most basic tasks. The history of technology can be read as one of augmenting human labour in more and more complicated ways. This then has an impact on society in much broader terms. For example, as Marx famously argued ‘the handmill gives you society with the feudal lord; the steam-mill, society with the industrial capitalist’ [12]. We could add to this today and ask: what kind of society does the smartphone or the platform give us? Marx’s quote has been taken as evidence that Marx was a technological determinist, but this misses important insights that can be developed from Marxism to understand the emancipatory possibilities of technology. Marx’s ([13], p. 1017) writings on the labour process provide an important starting point. Marx claims that the labour process, in ‘its simple elements remain common to all social forms of development’. So whether trying to understand the implications of the handmill or the platform, we can begin with these elements by starting with the labour process.

The shift between epochs like feudal to industrial described by Marx, or between one historical form of capitalism to another, does not stem from a technological breakthrough. Instead, Marx ([13], p. 1017) argued that it was triggered by a growing contradiction between the ‘material developments of production and its social form’. When Marx discusses ‘forces of production’ he is not just referring to technology, but also to labour power, attributing, as MacKenzie ([14], p. 477) has argued, ‘conscious human agency as a determinant of history: it is people, as much as or more than the machine, that make history’. This assertion of human agency in the development of both technology and capitalism is key to the argument developed here. Technology does not develop in a linear manner. Complex

technologies, including computers, software, and algorithms, are not neutral; like other technologies, they are designed, programmed, and used by people within particular social relations.

Marx also discusses another way that technology is used as part of the production process, and it is important to consider it. Marx ([15], p. 563) argued that ‘it would be possible to write a whole history of the inventions made since 1830 for the sole purpose of providing capital with weapons against working-class revolt’. Note that the way this begins is a flourish, rather than a clear statement, but nevertheless it contains an important point. As Marx also argued:

In England, strikes have regularly given rise to the invention and application of new machines. Machines were, it may be said, the weapon employed by the capitalist to quell the revolt of specialized labour. The self-acting mule, the greatest invention of modern industry, put out of action the spinners who were in revolt. If combinations and strikes had no other effect than that of making the efforts of mechanical genius react against them, they would still exercise an immense influence on the development of industry ... Of all the instruments of production, the greatest productive power is the revolutionary class itself [12].

The capitalist work relationship (of buying and selling people’s time) has never been a straightforward process for capital, resulting in increasingly complex ways to supervise, control, coerce, and motivate workers. These demands shape what kinds of technology are developed and how they are then used.

The complexity of this relationship between capital and technology was taken up and analysed by the Italian Workerists from the 1960s onwards. Their approach entailed a ‘Copernican revolution’ against the existing orthodox Marxism of the time ([16], p. 287). This involved what Tronti argued was the need to ‘invert the problem’, rather than starting from capital, and to ‘change direction, and start from the beginning—and the beginning is working-class struggle’ [17]. This insistence on focusing on the dynamic of working class struggle became developed into notions of autonomy of workers from capital—and also the importance of refusal of work. These questions were further developed in relation to technology

as it is used in the workplace. Panzieri developed a critique of the ‘capitalist objectivity of the productive mechanism’ in relationship to workers [18]. Building on Marx’s analysis of capital, Panzieri argues that the ‘development of technology takes place wholly within this capitalist process’ [18]. Although the discussion is rooted in the analysis of the factory, it is here that a tension with technology can be found. The critique is aimed at what Panzieri calls ‘objectivist ideologies’ that are connected with technological progress and particularly ‘with the phase of automation’ [18]. This automation in the factories is viewed as a capitalist response to working-class ‘insubordination’ and drive for autonomy.

For example, Noble found that automation of machine tools in factories could have been achieved through either numerical control or record-playback [19]. Record playback allowed control to be retained by workers on the factory floor, as their actions were recorded as part of the process and their skill continued to play an important role in the process, whereas numerical control involved the production of a mathematical model of the machine motion. As Noble explains ‘record-playback was a reproducer and, thus, a multiplier of skill, extending the reach of the machinist, N/C (numerical control) was an abstract synthesiser of skill, circumventing and eliminating altogether the need for the machinist’ ([19], p. 84). It was numerical control that became the dominant form, not because it was technically superior as a solution, but rather that it better suited capitalist control. This meant taking control away from factory workers (with a history of industrial militancy) and placing it with non-unionised office workers. The use of automation was therefore an attempt to increase workplace control, but also to expand capitalist planning ‘from the factory to the market’, and then ‘to the external social sphere’ [18]. Technological automation becomes a threat to autonomy, shutting down the possibilities and spaces for workers to refuse capitalist control. These lessons are then increasingly applied beyond the workplace.

In this analysis, there is a critical account of technology that develops, quite different to those that see an emancipatory potential of technology. Echoing the earlier Marx quote, Tronti argued that the ‘political history of capital’ can be read as a ‘history of the successive attempts of the capitalist class to emancipate itself from the working class’ [17]. The relevance of

this for analysis today lies in the insistence on revealing the class nature of technology. This is not just a process that applies to machines, ‘but also “methods”, organisational techniques, etc., are incorporated into capital and confront the workers as capital: as an extraneous “rationality”’ [18]. Therefore, as Panzieri argues, at the heart of this analysis was therefore an attempt to ‘comprehend’ capitalist technology ‘not in order to acknowledge and exalt it’ but ‘rather in order to subject it to a new use: to the socialist use of machines’ [18]. By seeking to reveal the class nature of technology, it can once again become a terrain of struggle, a contestation that forces alternatives back onto the horizon—not the potential emancipation of capital from workers (or at least workers’ resistance) but to a radical democratisation of work and life.

For a Digital Workers’ Inquiry?

For the Workerist tradition, this analysis was not intended to just serve a theoretical purpose, but intended as part of a theory and practice grounded in workers’ experience. In order to think about what this might mean today, the article now turns to discuss a series of concrete examples to think about the potentials of emancipatory technology, or emancipatory uses of technology. However, it is worth noting that when discussing technology at work today, the focus is often on digital technology—so much so that technology has become synonymous with digital technology. For example, when thinking about office-based work, we do not often think about the role of the chair, desk, wrist rest, pens, lighting, plumbing, electricity, or fibre optic networks—instead focusing on the computer and software. These later aspects do, of course, have an important and tangible effect on most people’s day to day work, but they also rely upon a range of other forms of work and technologies too. However, the lived experience of technology and how it is used is vital for unpacking its effects, potential or otherwise.

There are further insights from Marx and the Italian Workerists that can be used to develop this understanding. Later in Marx’s life, he wrote a call for a workers’ inquiry with a long set of questions for workers. The intention was to find a way to connect the theorisation of capital with the experiences of the workplace. This idea of inquiry has been taken up

by various later groups, including The Johnson Forest Tendency, Socialisme ou Barbarie, and the Italian Workerists. Most recently, there has been a renewed interest in the project of workers' inquiry from groups including Notes from Below in the UK, Viewpoint in the US, Into the Black Box in Italy, Plateforme d'Enquêtes Militantes in France, Anker Mag in Belgium, and Invisíveis in Brazil, amongst others. These groups have been involved in thinking through the shifts in class composition currently taking place, much like the earlier groups attempted to grapple with shifts in production.

For Notes from Below, this rethinking of class composition today involves expanding the framework of class composition. The Workerist framework involved the technical composition, involving the organisation of the labour process at work and the political composition, involving forms of resistance and organisation. This provided a way to understand how changes at work shifted class composition, leading to an understanding of what Tronti described as the 'political leap' to workers' organisation [17]. Notes from Below expanded this to include a third dimension of social composition: 'first is the organisation of labour-power into a working class (technical composition); the second is the organisation of the working class into a class society (social composition); the third is the self-organisation of the working class into a force for class struggle (political composition) [20].

Given the current shifts in work taking place, many of the inquiries being experimented with are in sectors that are either predicated on digital technology (like platform work) or deeply shaped by new technologies (for example, logistics). These inquiries—some of which will be drawn upon in the following section—provide an important route into the discussion of the emancipatory potential of technology, as well as reflecting on the possibilities of workers' inquiry and co-research. As argued by Englert et al. ([3], p. 134), class composition has, indeed, 'shifted in profound and differing ways, meaning that many of the questions need to be taken up very differently today. If the tools and the frameworks of workerism provide the starting point, we also need to start charting a new path forward in the context of digitalisation'.

For some of the Notes from Below editors, this has been applied to analyse Uber [3, 21], as well as

Deliveroo [1, 22]. However, apart from this, in the context of platform work, 'too often, the focus is not on new forms of class composition this entails, but becomes narrowly concerned with technologies and algorithms' ([3], p. 136). The aim here is to redress this, drawing out the context and use of technology at work.

The Challenge of Understanding Platform Work

Much of the research on platforms has focused on the role of digital technology in general and algorithms in particular. For example, there has been much discussion of algorithms in general [23–28], as well as Lee et al. focusing on 'algorithmic management' [29]. With Uber, there have been in depth discussions of the role of algorithms [30, 31], as well as placing this discussion of technology within a wider critique of the work organisation [32, 33]. One suggestion, by Kitchin, is to start by 'examining how algorithms do work in the world' ([34], p. 25). This more STS/ANT approach of focusing on the technological artefact of the algorithm is a useful starting point, but the social relations from which it emerges, reinforces, and acts upon are key to understanding its implications.

For forms of platform work like Uber and Deliveroo, there are serious difficulties in unpacking how "the algorithm" works. For example, at Deliveroo, many drivers develop rival theories about how algorithms are used, what measurements are taken, who gets jobs dispatched, and in what order, or who is 'deactivated', for example [2]. However, what is being developed on these platforms is not a simple algorithm that ensures pizza is delivered as fast as possible or the closest private hire driver gets a booking. Much of the role of the algorithm is unrelated to these features of the work. For example, with Facebook, the overwhelming majority of the code is not helping users to connect and stay in touch. Instead there is a hugely complicated process of data collection, the development of categories and typologies, and the targeting of specific advertising. Similarly, with work platforms, there are complex balances being made to ensure that drivers work at particular times, stay on the platform, and so on, all while maximising the extraction of value. For example, Sarah Mason has found with Lyft drivers, there are compelling

processes of gamification that are designed to ensure drivers remain on the road [35].

Instead of attempting to reverse engineer the algorithmic decision making of the platform—something that is better left to computer scientists or workers themselves—this section will instead consider what is happening in these processes from the perspective of workers. The first point to make here is that the data collection that takes place on these platforms is indeed novel. It is far more developed than data collection in call centres—once considered to be a near perfected form of ‘electronic panopticon’ [36]—or forms of factory work. However, the role of information in work is, in itself, not a new phenomenon. As Alquati, a formative Italian Workerist, noted:

Information is the most important thing [l’essenziale] about labour-power: it is what the worker, by means of constant capital, transmits to the means of production upon the basis of evaluations, measures, elaborations, in order to work [operare] upon the object of labour all those changes in form that give it the use value required. The ‘disposability’ of the worker leads him to be a qualitative indice of socially necessary labour time, by which the ‘product’ is valued as the ‘recipient’ of a certain quantity of ‘information’. ([37], p. 113).

Even in forms of supposedly manual work, information plays a key role in the productive process. This was clearly recognised by Taylor in research in the Midvale Steel factory that formed an important part of his development of the theory of scientific management. Taylor even argued that managers should undertake the task of ‘gathering together all of the traditional knowledge which in the past has been possessed by the workmen’ [38].

Inquiry at Deliveroo

Workers’ inquiry involves a different approach to understand platform work. Instead of focusing on the algorithm, the platform, or other parts of technology, it starts from the experience of workers. The inquiry that I draw on in this section began in 2016, before the first strike of Deliveroo riders in London. As is part of the method, this involved both research and organisation, attempting to understand the work with riders in

order to find new ways to organise. This entailed many informal discussions outside restaurants in London, in impromptu and organised meetings, both with networks of riders and the Independent Workers Union of Great Britain (IWGB) branch that was later formed. It also involved co-writing an article with a Deliveroo rider about their experience of work.

The first aspect of the work at Deliveroo that requires attention is the technical composition. It is worth noting here that during the inquiry, the organisation of Deliveroo has shifted many times, introducing new payment schemes, distribution of work, terms in the contract, and so on. In the early discussions of the work with Deliveroo riders, the algorithm was often mentioned. However, this was discussed in relatively abstract terms: the algorithm was the thing that distributed the work, it was the source of the metrics used to evaluate rider performance, and it mediated many of the interactions workers had on the platform. This was the most notable difference to other forms of work that I had either worked or researched before: the physical figure of the manager or the supervisor was notably absent from the labour process. Instead of the call centre supervisor leaning over the shoulder of a worker, or the manager issuing orders in a pub, the managerial function was being mediated via the worker’s smartphone. This meant that, like in the call centre, large quantities of data were constantly being collected and work was then being distributed, but with little explanation for the worker about the reasoning behind this. Many of the workers I spoke to developed their own understandings or rival theories, using these to help them make sense of the work.

When starting from workers’ experience, the algorithm can be understood through the relationship it involves between the platform and workers. As Alquati ([37], p. 114) argued information has two important roles within the workplace. First, this is as ‘control information’, like that Taylor was aiming to take in the factory context. For a platform like Deliveroo, this can be seen in the withholding of information from workers. For example, at the time of the co-writing, Deliveroo riders only received the details of one step at a time during their deliveries. This prevented riders from rejecting long or difficult journeys, as they are not made aware of this at the point of acceptance. This breaks up the labour process, following the Taylorist approach of management to deskill and degrade work [4]. The second role of

information is what Alquati argued ‘constitutes the collective legacy of the working class ... productive information tout court’ [37]. This is the information generated and communicated by workers, which capital attempts to subsume and then transform into something that can be valorised. In the case of platforms, the valorised information or data, ‘enters the cybernetic machine and it is transformed into a sort of machinic knowledge’ ([39], p. 5). The use of smartphones, apps, GPS, and so on is therefore an attempt to, as Pasquinelli argues, ‘encode workers’ knowledge into bits and consequently transform bits into numbers for economic planning’ [39]. Data are generated from both workers during the labour process and customers who engage with the platform, both of which feeding into the proprietary algorithms that platforms rely upon.

In article I co-wrote with a Deliveroo rider, these questions really came to the fore. While writing, we often discussed how Deliveroo would have precise data about their work that would be useful to see. Instead, the worker began self-tracking their own activity, sourcing their own worker orientated data about where they road, the hotspots for traffic accidents, or good places to wait for orders. He also discussed how the experience of being managed by algorithm involved two important dynamics: first, it hid the actual human manager. This meant that it was hard to know whether you were being watched or monitored (having an effect analogous to Foucault’s metaphorical Panopticon) but in reality relied upon an illusion of control. Second, this illusion of control was also experienced in a much more positive way than working in other forms of service work with a physical manager present to constantly check up on the worker—often with the imperative of engaging in emotional labour. A third can be added here from Cant’s inquiry at Deliveroo [22]: that the lack of supervisory or managerial layer at Deliveroo means that there is little ability for mediation of workers’ complaints. Without this pressure valve to offer small concessions (or even appear to offer concessions), these grievances rapidly build, leading to a very high propensity for these workers to strike.

Before getting to discuss this aspect, it is also worth noting that workers on the platform are not isolated from each other. While the platform deliberately leaves out the ability for workers to communicate between each other, this has not prevented workers

from finding ways to connect with each other. The rapid growth of platform work is predicated on a number of factors, including technology, but also social dynamics and political economy. These pre-conditions shape how platform work is formed in different national contexts. In the UK context, an important factor that shapes the social composition of this work is migration. The riders at Deliveroo are broadly divided into two groups: first, cyclists, who are often British or European and current or former university students and tend to work over peak times and second, moped or motorbike riders that are often migrants. For example, in London there is a large network of Brazilian riders as well as Algerian riders in other parts of London. These workers have strong social connections outside of the workplace—often these are what led them to start working at Deliveroo, being introduced to the work through these networks upon arriving in the UK. These form an important ‘invisible organisation’ as Cant [22] refers to them that provide a basis for collective action, both over conditions at work but also issues relating to immigration and racism. Migration, as Papadopoulos et al. ([40], p. 202) have argued, is ‘a creative force within ... social, cultural and economic structures’.

Another key factor is the ‘mass connectivity and cheap technology’ ([41], p. 25). Of particular interest here is the ubiquity of smartphones needed to engage with delivery, transport, or other on-demand work like cleaning or care. While smartphone use is particularly high in the UK, for example, this also means that smartphones are used as a key part of the labour process. Workers use their smartphone during and in between work, meaning it is integrated into the everyday rhythm of their work. This is quite different to other forms of low paid precarious work. For example, workers in call centres are often expected to put their phone in a locker before the shift. This is justified as a data protection need, but it also prevents work avoidance and communication at work [1].

The first implication of this use of smartphones is that regular communication becomes integrated into the work process, particularly for delivery and transportation platforms. This can involve sharing tips for navigating the city, avoiding dangerous areas or police stops, or just engaging in an online version of conversations around the watercooler. As has been well documented with Deliveroo and Uber drivers, there are dense networks of online communication on

WhatsApp. These become forums of discussion and sharing of information, as well as becoming channels for broadcasting calls for collective action. For example, in the UK these networks played a key role in mobilising for the first strike in the UK. During research in the run up to the strike, it became clear that there were large and overlapping WhatsApp groups across different zones in London. When drivers met at algorithmically determined meeting points, they would share numbers and start groups, with these organically spreading throughout the workforce.

WhatsApp is a proprietary instant messaging system that is owned by Facebook. It has become the dominant smartphone messaging system in the UK, with more users than standard SMS text messages or rival services like iMessage, Telegram, or Signal. WhatsApp is particularly popular with migrant workers in the UK as it provides a very cheap method to communicate with friends and relatives across the world. Therefore, the adoption of WhatsApp as a form of communication at work builds upon its existing use outside of the workplace. This also overlaps with work as many existing migrant groups like the those discussed above that are part of WhatsApp groups before joining the platform. Unlike the Deliveroo platform, it is not surprising that WhatsApp has been used for alternative purposes by workers. For WhatsApp, the content of the messages is not as important as the frequency of use and size of community using it. For WhatsApp (and by extension Facebook), it does not matter if workers are using the system to share updates about their life, complaints about work, or calls for strike action. However, it is important to note that the messaging system was not developed to facilitate this kind of use. As anyone who is a member of more than a few WhatsApp groups will know, the speed of messaging can be very high, meaning that participation can be quite time-consuming. In large groups it can be very difficult to engage in multiple participant discussions or make decisions. Instead, large WhatsApp groups contain two important characteristics: first, they provide an audience to which messages can be directed, including information or calls to action. Second, the list of members is accessible to all, meaning that it is possible for smaller groups to be started, whether around a particular issue or for parallel discussions. This provides the opportunity to use WhatsApp—in addition, of course, to the physical meetings and

discussions—to support the development of workers' struggle on the platform.

Technology has therefore played an important role within the political recomposition of Deliveroo workers. The strikes began in London in 2016, spread into a transnational strike wave from 2017 [42] and have now become part of a global movement of food delivery workers. These started with conversations on the side of the road outside restaurants, but these networks were facilitated by technologies like WhatsApp as they were already integrated into the work and life of these workers. The conflict over capital and labour, expressed in the case of Deliveroo over the payment per delivery, provides an antagonism from the technical composition of this work that workers continue to respond to—shaped by their social composition—into new forms of resistance, organisation, and politics.

Inquiries Using Technology

This political recomposition shows that workers still find the opportunity to talk to other people they work with. An important issue for critical research—and particularly that which tries to develop workers' inquiries—is what role technology can, or should, play in that process. As Romano Alquati previously argued, 'political militants have always done *conricerca* [co-research]. We would go in front of the factory and speak with workers: there cannot be organisation otherwise' [43]. Therefore when thinking about undertaking inquiry or co-research, the starting point is trying to meet workers where they currently are, whether in meeting points that are either online or across the city.

The more widespread use of digital communication also provides new opportunities for thinking about workers' inquiry today. When Marx wrote his call for an inquiry, it was due to be published in a French newspaper, with the option for workers to submit written answers by post [44]. Anyone who has spent time working on postal surveys can attest to the problems of very low response rates, as well as lacking the ability for two-way communication, or ability to adapt the survey during the process. It is now much easier to arrange a survey through online communication, with methods to remind participants, alter questions on the fly, as well as monitor results live. For example, this has been used to help with organising PhD students who teach [45], as well as

part of organising efforts with Deliveroo riders in the UK. The latter survey involved closed questions about aspects of their work, as well as open questions to gather testimonials from workers. The survey was distributed through the existing WhatsApp networks, providing an evidence base for a parliamentary select committee submission [46] and bringing workers into contact with the newly formed trade union branch.

The possibilities for a digital workers' inquiry go far beyond just offering better ways to survey workers, as well as just limiting the possibilities to starting inquiries with digital workers/labourers [47]. The use of smartphones and instant messaging, as well as social media more widely, represents a shift in how people produce information, not only in how they consume it. For example, when Marx was writing, it would have likely been unusual for workers to write that much. Although it is worth noting here Rancière's study on worker writing during the revolution of 1830 [48], nevertheless, many workers would not have been able to do so regularly throughout the working day. The same would still hold true for factory workers during the time of Johnson-Forest Tendency, *Socialisme ou Barbarie*, or Workerists. This is not a critique of workers' practices, but rather that working time did not facilitate or provide the tools of regular writing. For groups involved in workers' inquiry projects of co-research, this created difficulties. The militants of these organisations, either 'organic intellectuals' or academics, had more experience and confidence with writing. In the Johnson-Forest Tendency, this led to the development of the 'full fountain pen' method ([49], p. 125), involving workers being paired with an intellectual that would write up their account. For a practice like workers' inquiry, which involves both research and organising (missing either means it is no longer an inquiry), this means thinking critically and reflexively about the role of the researcher, intellectual, or external militant. As Gigi Roggero has warned, reflecting on the development of 'post-operaismo' from the 1980s on:

"post-operaismo" was coined in Anglo-Saxon and North American universities in an attempt to capture the power of operaismo, to depoliticize it and abstract it from conflict and class composition, to render it good for academia and the political economy of knowledge, and no longer good for struggles [50].

It is therefore deliberately and unapologetically about intervention. This does not just mean considering the power relationships between researcher and researched or the form of outputs, but rather how workers' inquiry can combine the moments of research and organisation to document, share, circulate, and support workers' struggles.

Workers' inquiry is therefore not a set of discrete methods, although many have involved aspects of surveys, interviews, and (broadly speaking) ethnography. The aim is starting the process with workers, starting from an understanding that their perspective of work matters for both understanding and changing it. In many forms of contemporary work, workers engage in written discussions of work, working conditions, and what to do about it. Often these are in a more fleeting or ephemeral form of instant messages. However, inquiry can build upon these moments of communication, providing the support and framework to develop these insights into a shareable form. Unlike the traditional methods of conducting inquiry, digital technology provides a range of other ways that research can be conducted with workers. In the context of platform work, this is particularly important as workers' schedules often involve large and unpredictable workloads. The two largest pieces of co-writing that I have worked on were with a Deliveroo rider [51] and an Uber driver [21]. For both of these, digital technology played a key part of the process. In both cases, we met in person, but also wrote separately using online tools like googledocs. These provided moments in which we could write together, but separately, drawing out accounts of contemporary work from the perspective of the worker. What is needed is more experiments with workers writing, adapting and developing the methods with the ways that workers already write today. The struggles over platform technology provide a testing ground to experiment with these new methods for workers' inquiry.

Conclusion

The argument here involves two points about the emancipatory potential of technology: first, that we need to understand how technology is experienced by workers in the labour process; second, to understand how technologies are being appropriated for workers' use. Both parts are key to exploring, in practice,

any emancipatory potential. While each is related to technology, they both involve an understanding of technology and its use as rooted within existing social relations.

For many platform workers, whether on food delivery platforms like Deliveroo, driving passengers or cleaning houses, the experience of technology is often one of being estranged from the algorithmic processes that manage them. Their labour and information feed into these systems, to be used to manage and extract value from them. However, in the labour process, many of these workers find new ways to communicate and manage the challenges of their work. It is in the appropriation and weaponising of communication technology like WhatsApp that workers have been able to show an emancipatory potential that can be found in technology. The re-appropriated technology is used as part of a struggle against work, which in this case is mediated through algorithms and platforms.

By starting the critique of technology from the workplace, this paper proposes a Workerist account of how technologies can be used or re-appropriated, starting from a reading of workers' struggle at Deliveroo. The next steps could involve identifying who designs and makes these technologies for capital (and under what pressures this is achieved), what new forms of exploitation emerge from their use, and how technology transforms work more generally. The understandings that can be gained here are important for future political horizons. Not to understand, as Panzieri argued, the 'technological rationality' of capital 'in order to acknowledge and exalt it'—as perhaps too many are at risk of doing—but 'rather in order to subject it to a new use: to the socialist use of machines' [18], from the factory floor to the most complex algorithmic software.

Instead of dreaming about how technology can be repurposed after capitalism (which often involves a failure to consider how capital could be overcome or why it should), there needs to be a focus on how technology can be used in the here and now. As Marx and Engels argued:

Now and then the workers are victorious, but only for a time. The real fruit of their battles lies, not in the immediate result, but in the ever expanding union of the workers. This union is helped on by the improved means of communication that are

created by modern industry, and that place the workers of different localities in contact with one another. It was just this contact that was needed to centralise the numerous local struggles, all of the same character, into one national struggle between classes. But every class struggle is a political struggle. And that union, to attain which the burghers of the Middle Ages, with their miserable highways, required centuries, the modern proletarian, thanks to railways, achieve in a few years [52].

Given this was written almost one hundred and seventy years ago, the potential of technology today greatly overshadows the railways of the time. As I have argued elsewhere [53], there is the possibility of connecting of workers with different labour processes and in different locations across the world, whether directly involved in digital work or not.

New technology can be used to supplement and facilitate (but not replace where it is still a possibility) face-to-face organising. New technology can form part of 'an electronic fabric of struggle' [54], as well as provide new ways to monitor and suppress. The key is understanding how workplace conflict has been changed by digitalisation, and in turn what new forms of resistance and organisation—in addition to traditional methods—will emerge in the political re-composition of the working class. This is how technology is developed, revised, and used. It is here that the emancipatory potential of technology can be expressed through processes of workers' inquiry and co-research with workers.

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